



Dulles Corridor Special Study Transportation Analysis of Current Comprehensive Plan

Presented to:

Reston Master Plan Special Study Task Force

Presented by:

Fairfax County Department of Transportation

October 26, 2010

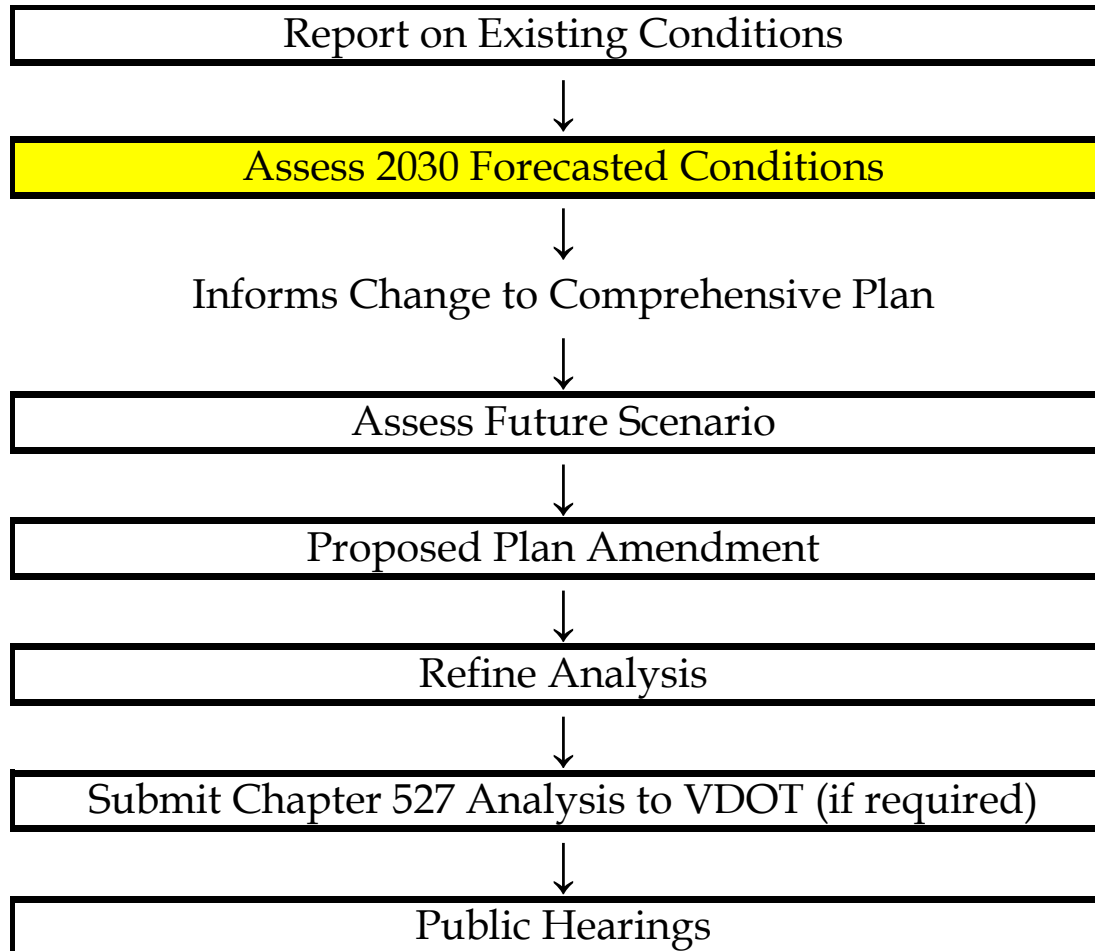


Presentation Outline

- Purpose of Analysis
- Assumptions in Model
- Travel Trends and Transit Usage
- Road Network Performance
- General Mitigation Strategies
- Questions/Discussion



TRANSPORTATION ANALYSIS PROCESS





Purpose of Analysis

■ To Evaluate Forecasted Conditions for 2030

■ Travel Trends

- Changes in where and how people travel

■ Transit Usage

- Changes due to Metrorail

■ Road Performance

- Critical Intersections
- Vehicle Miles Travelled (VMT)



What is the Model?

- Travel Demand Forecasting Model
 - Tool Used by all MPO's in US
 - Regional Model used by MWCOG with County Enhancements
- Land Use is Divided into Zones (TAZ's)
- Supply of Transportation is represented by the highway and transit network
- Demand for Travel Developed Using a Series of Mathematical Models
- Provides information such as vehicle miles traveled (VMT) and mode choice/use

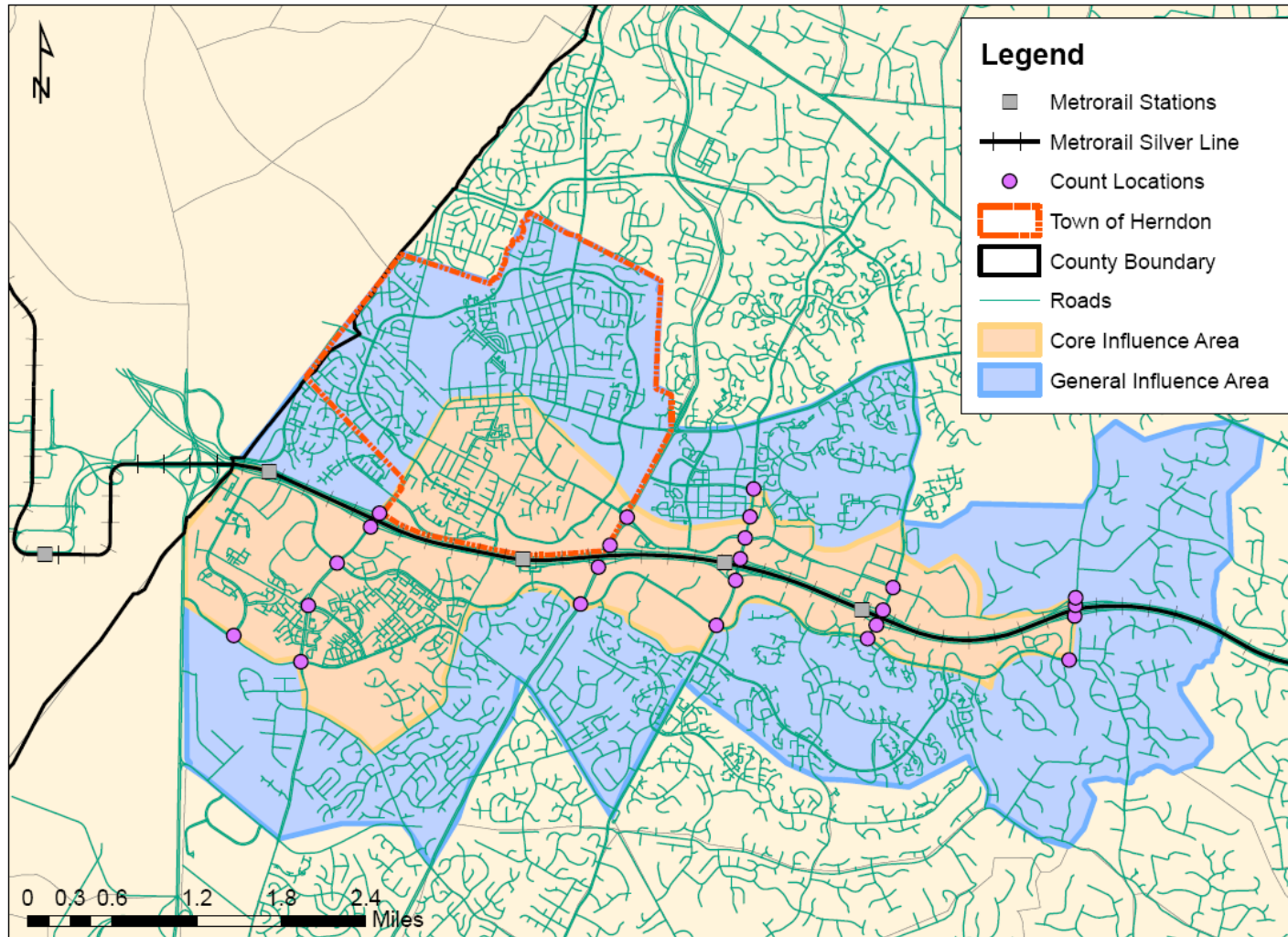


Model Assumptions

- Study Area
- Land Use – MWCOG Round 7.2 + recent County Plan Amendments
- Road network improvements for 2030
- Transit – Stations along Phase II of Dulles Rail are open and bus service is reoriented to serve rail stations and local area



Study Area





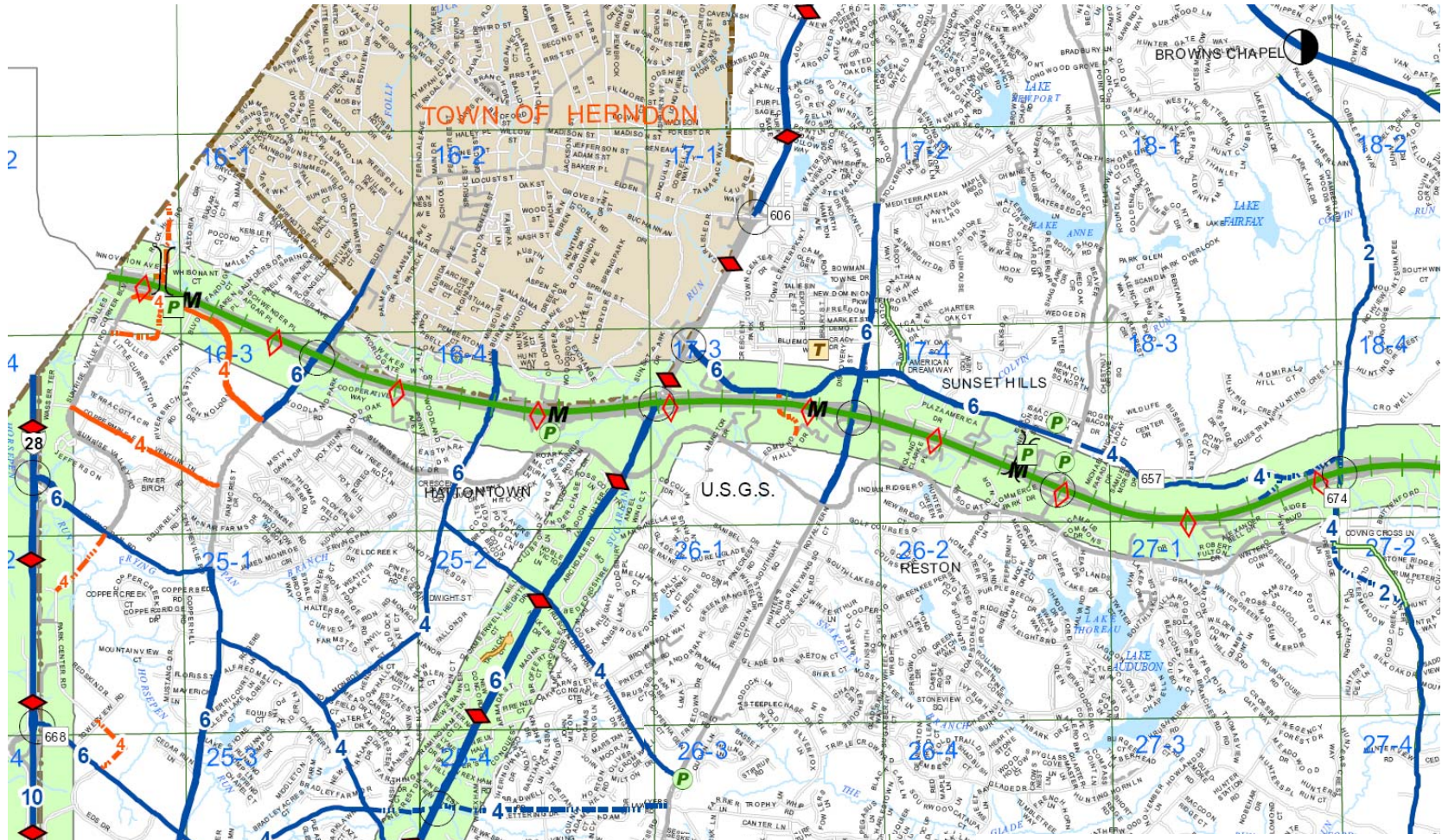
Study Area Land Use (4 Station Areas)

Land Use	Base 2005	Future 2030	Change 2005-2030	
			#	%
Residential				
Households	33,109	50,276	17,167	51.8%
Non-Residential SF				
Office SF	30,766,750	43,989,400	13,222,650	43.0%
Retail SF	3,540,000	4,969,600	1,429,600	40.4%
Industrial SF	<u>1,396,800</u>	<u>1,607,400</u>	<u>210,600</u>	<u>15.1%</u>
Total SF	35,703,550	50,566,400	14,862,850	41.6%



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Road Network Assumed





Road Improvements Assumed in 2030 Base

- Widening of Route 28 to ten lanes including an HOV lane in each direction
- Widening of the Fairfax County Parkway to six lanes including an HOV lane in each direction
- An overpass across the Dulles Toll Road near the County line (Rock Hill Road Overpass)
- An overpass across the Dulles Toll Road west of Wiehle Avenue (Soapstone Overpass)
- Widening of Centreville Road to six lanes per County Transportation Plan
- The extension of Sunrise Valley Drive south of Frying Pan Road, completion of improvements to West Ox Road, Coppermine Road, and Reston Parkway, and widening/improvement of Fox Mill Road, Monroe Street, and Frying Pan Road

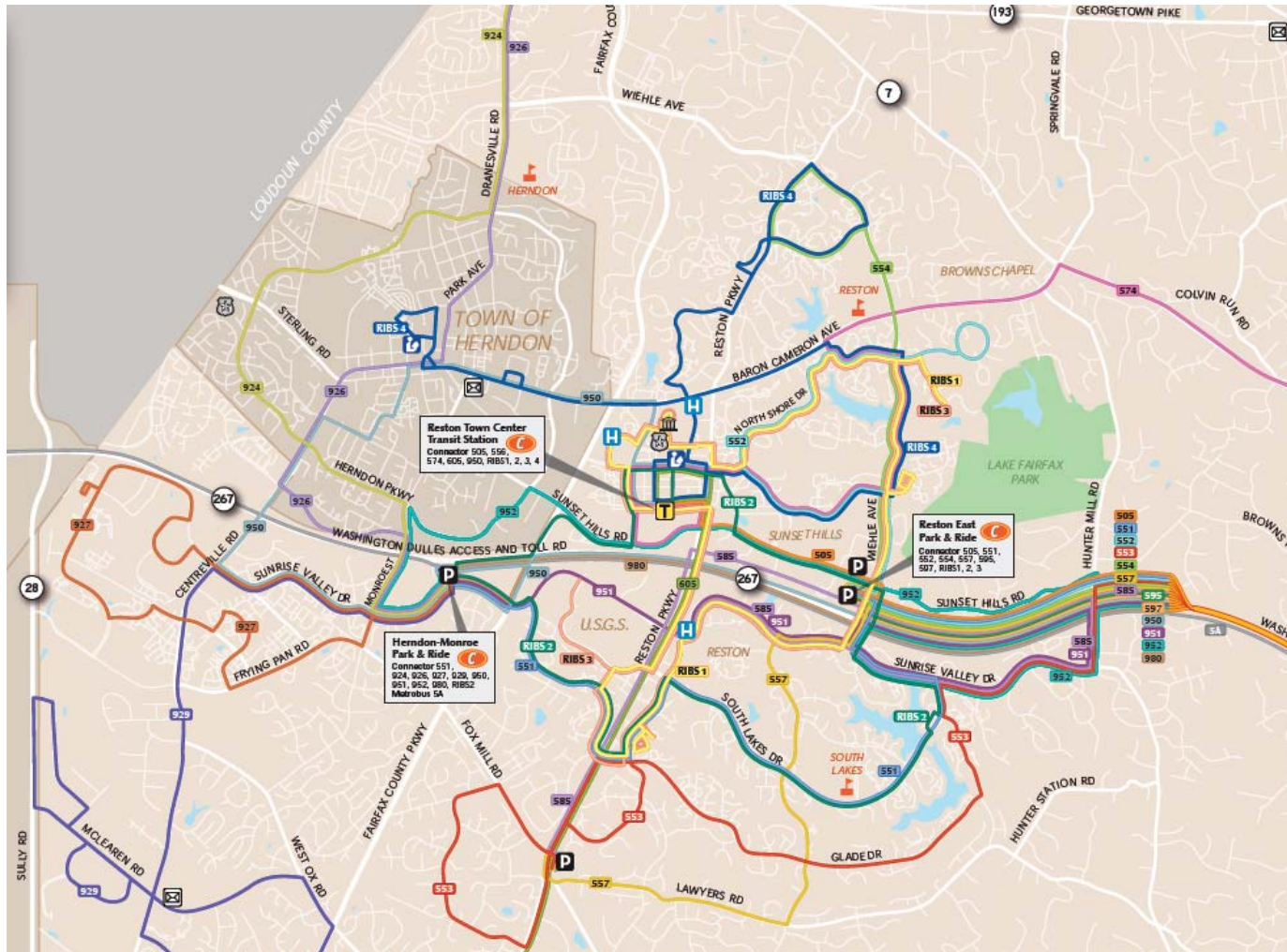


Transit Service Existing and Future (2030)

Transit Service Area	Existing (Per Peak Hour)			Future (2030) (Per Peak Hour)		
	Buses	Trains	Seats	Buses	Trains	Seats
Eastern Edge of Study Area	65	0	2,600	30	17	9,360
Route 7	5	0	200	5	0	200
Route 28	0	0	0	2	0	80

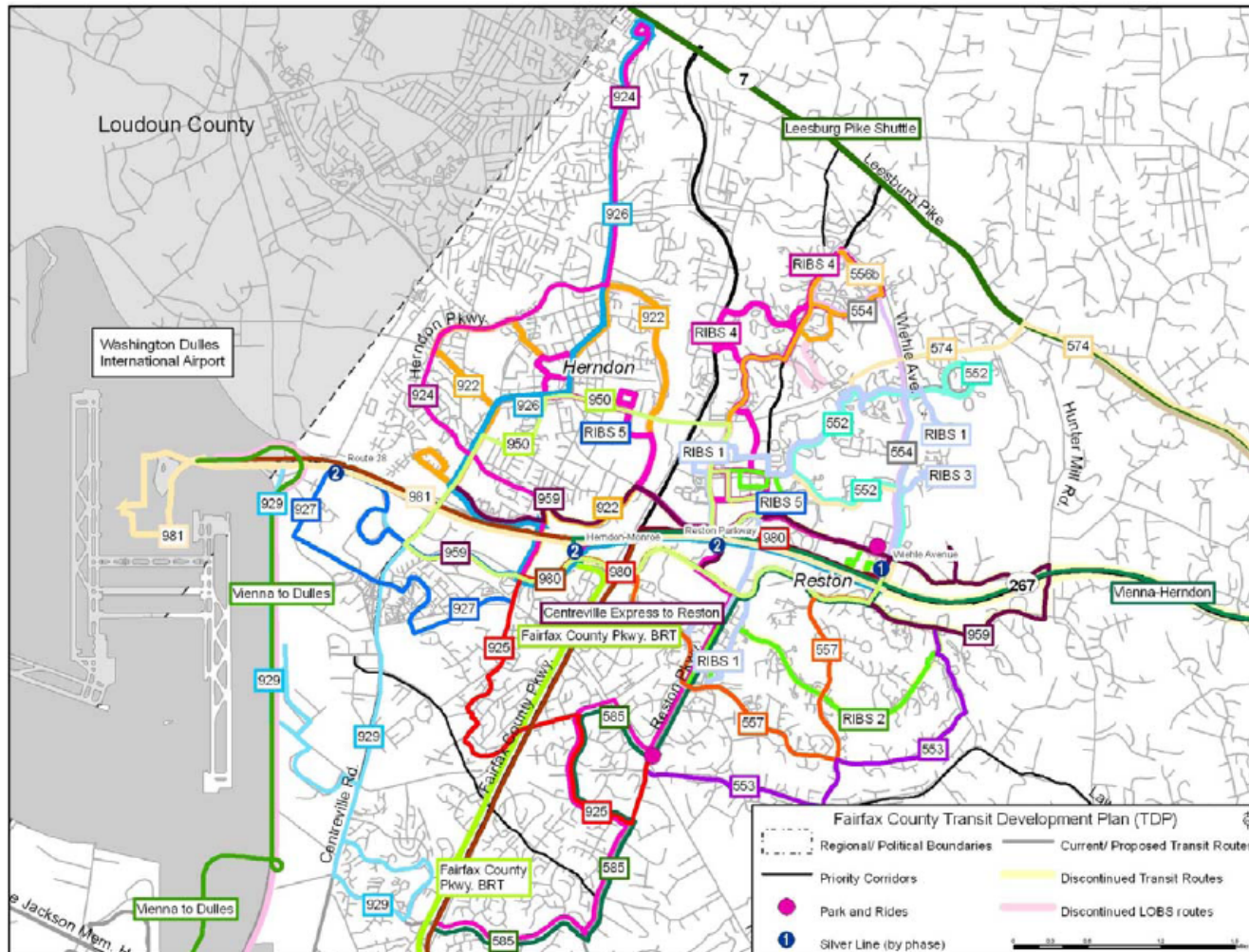


Existing Transit (Bus Only)





Future Transit (Bus and Rail)



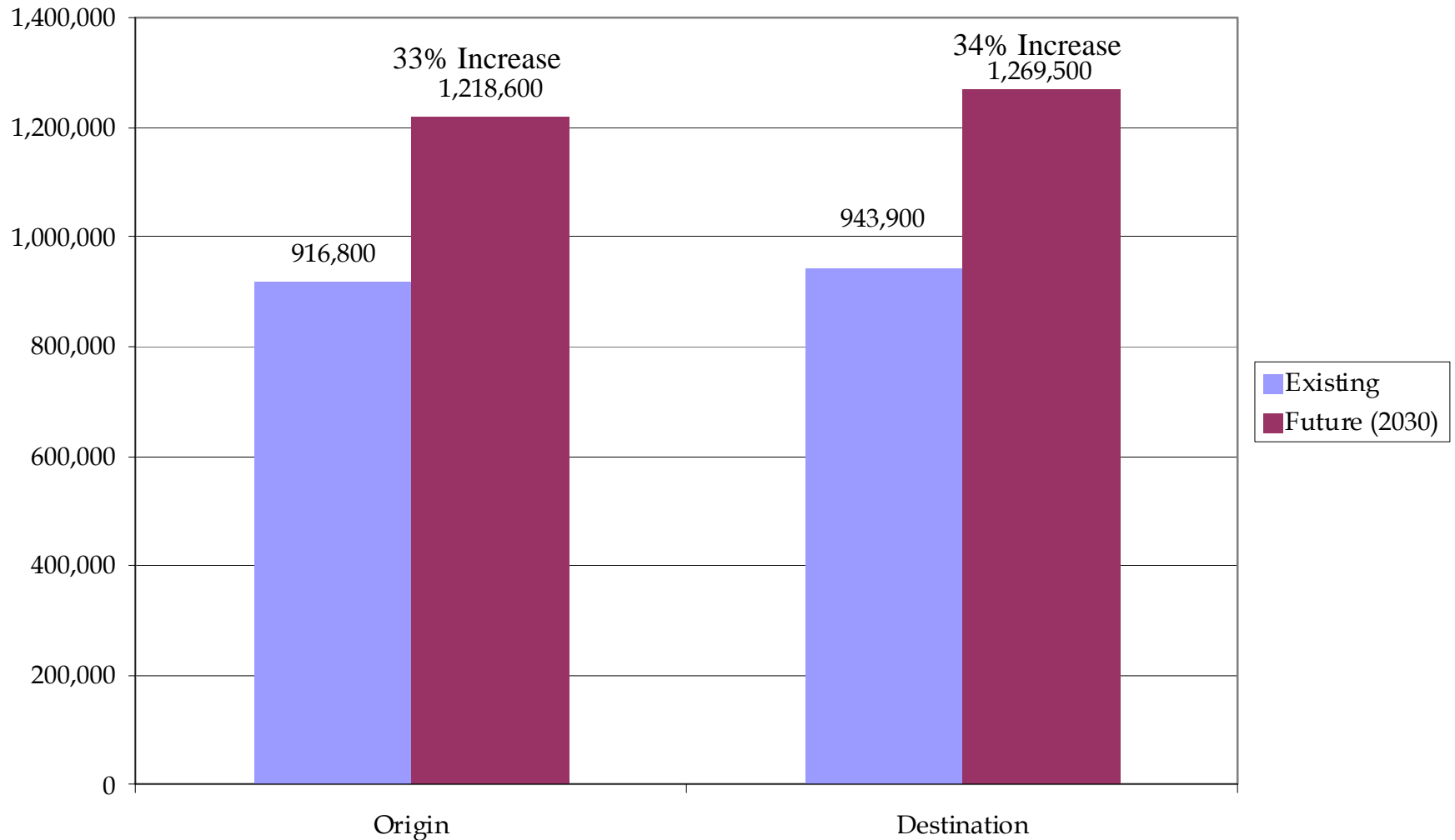


Travel Trends and Transit Usage



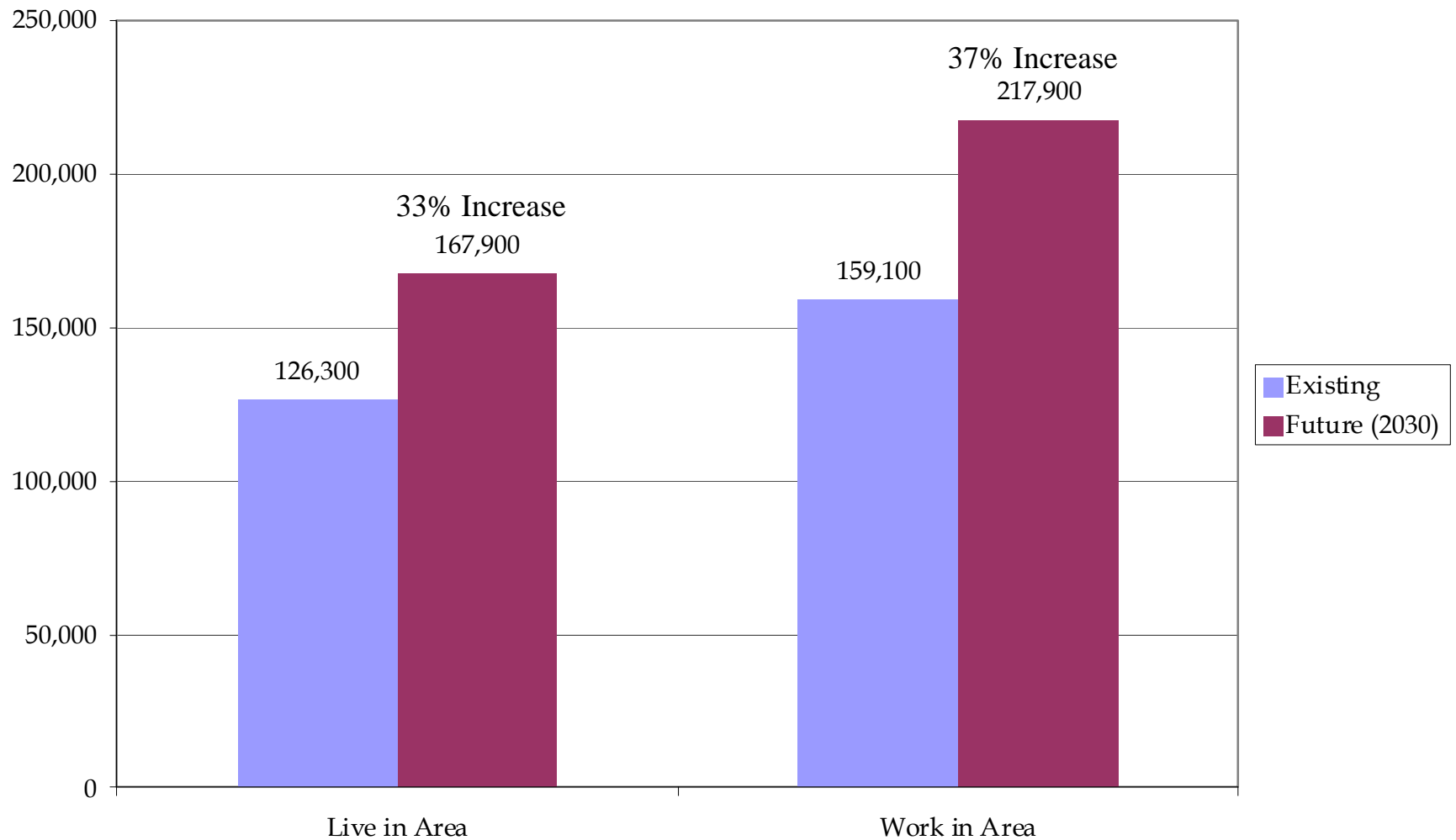
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Motorized Trips in the Study Area





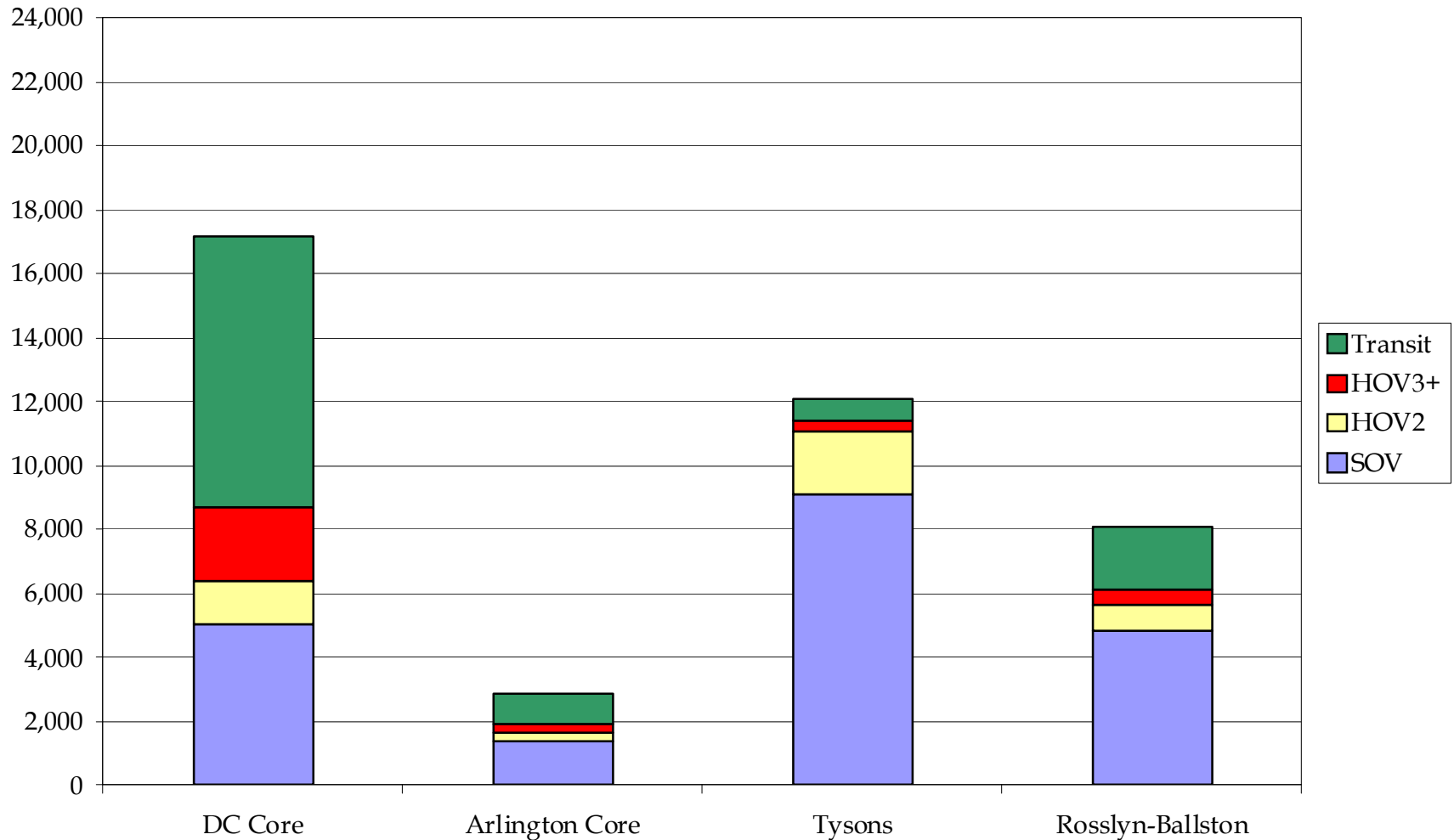
Motorized Commuter Trips in Study Area





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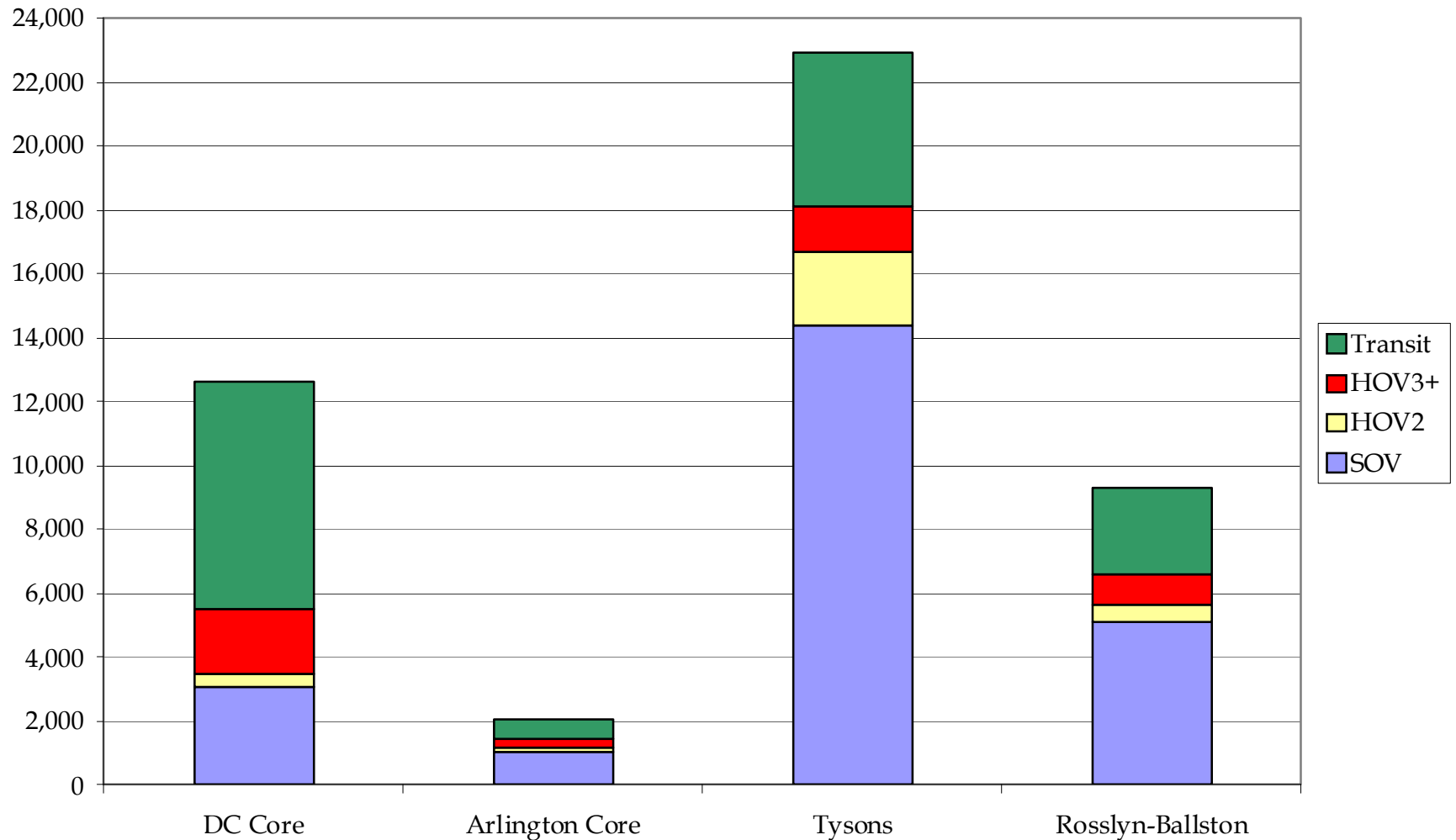
Existing Mode of Choice for Commuters that Live in Study Area





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Future Mode of Choice for Commuters that Live in Study Area

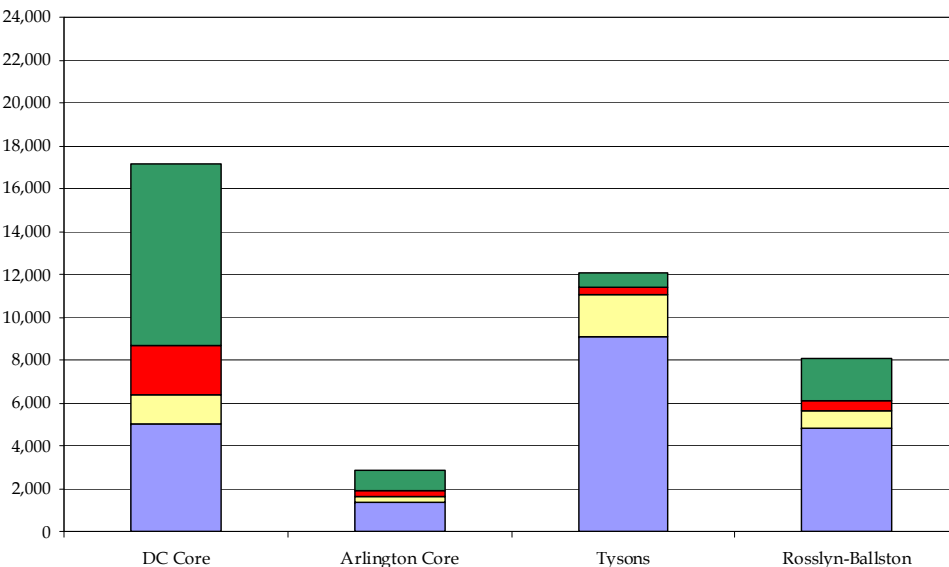




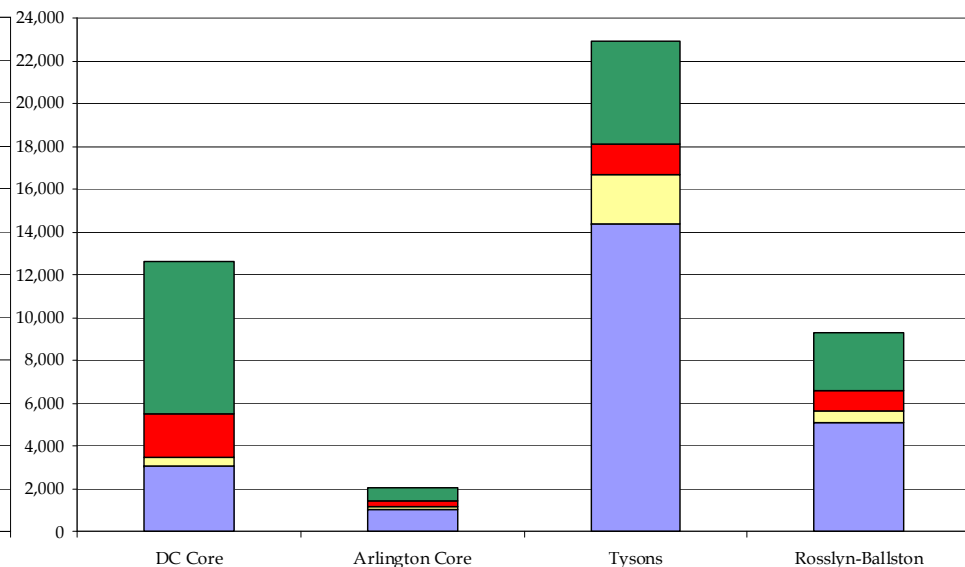
- Commuting to “Silver Line” locations and internal trips increases from 48% to 57%
- Fewer Commuters to D.C. but greater percentage will use transit
- Commuting to Tysons nearly doubles with transit use increasing by a factor of 7

- Commuting to Arlington increases by only 9% with transit use increasing from 27% to 30%
- Internal commuting trips increase from 22% to 29%

Existing Mode of Choice for Commuters that Live in Study Area



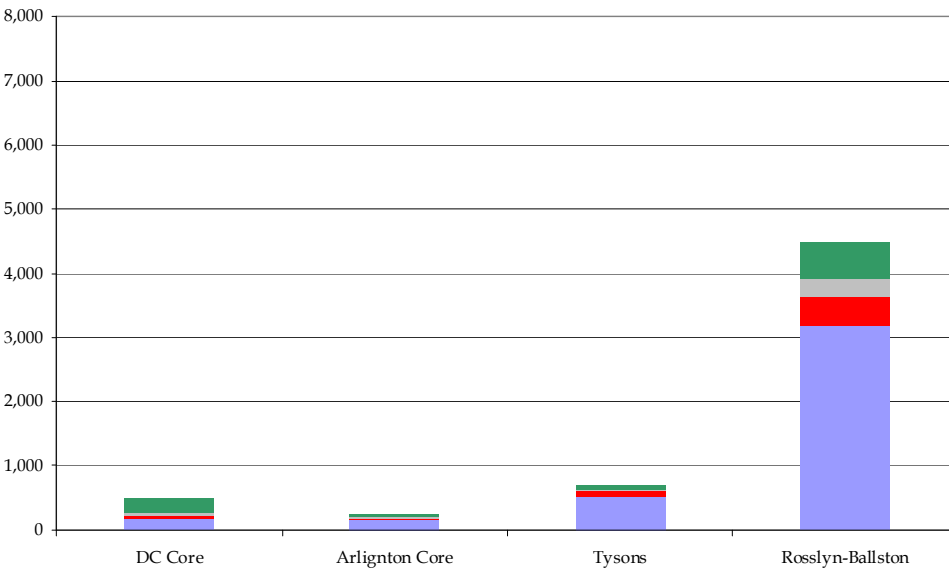
Future Mode of Choice for Commuters that Live in Study Area



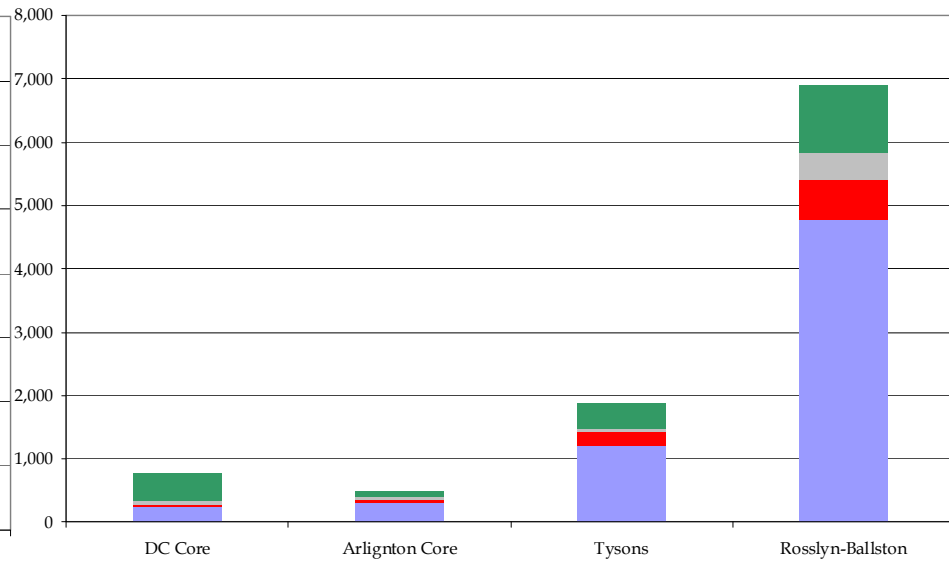


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Existing Mode of Choice for Commuters that Work in Study Area



Future Mode of Choice for Commuters that Work in the Study Area





Road Network Performance



L.O.S.

Roadway Segments or Controlled Access Highways

A

Free flow, low traffic density.

B

Delay is not unreasonable, stable traffic flow.

C

Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.

D

Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.

E

Actual capacity of the roadway involves delay to all motorists due to congestion.

F

Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.

Intersections

No vehicle waits longer than one signal indication.

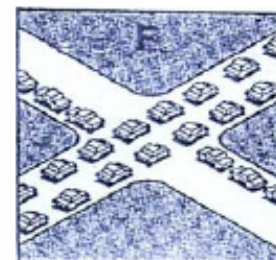
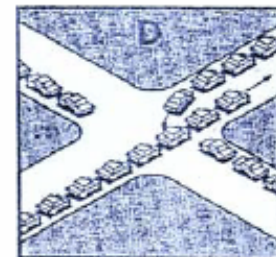
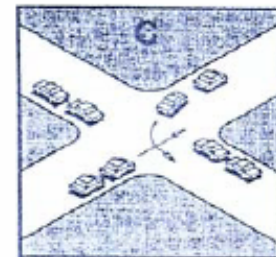
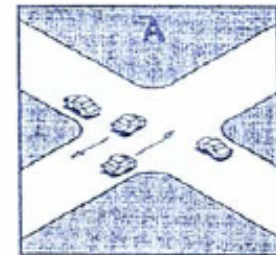
On a rare occasion motorists wait through more than one signal indication.

Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.

Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive back-ups.

Very long queues may create lengthy delays, especially for left turning vehicles.

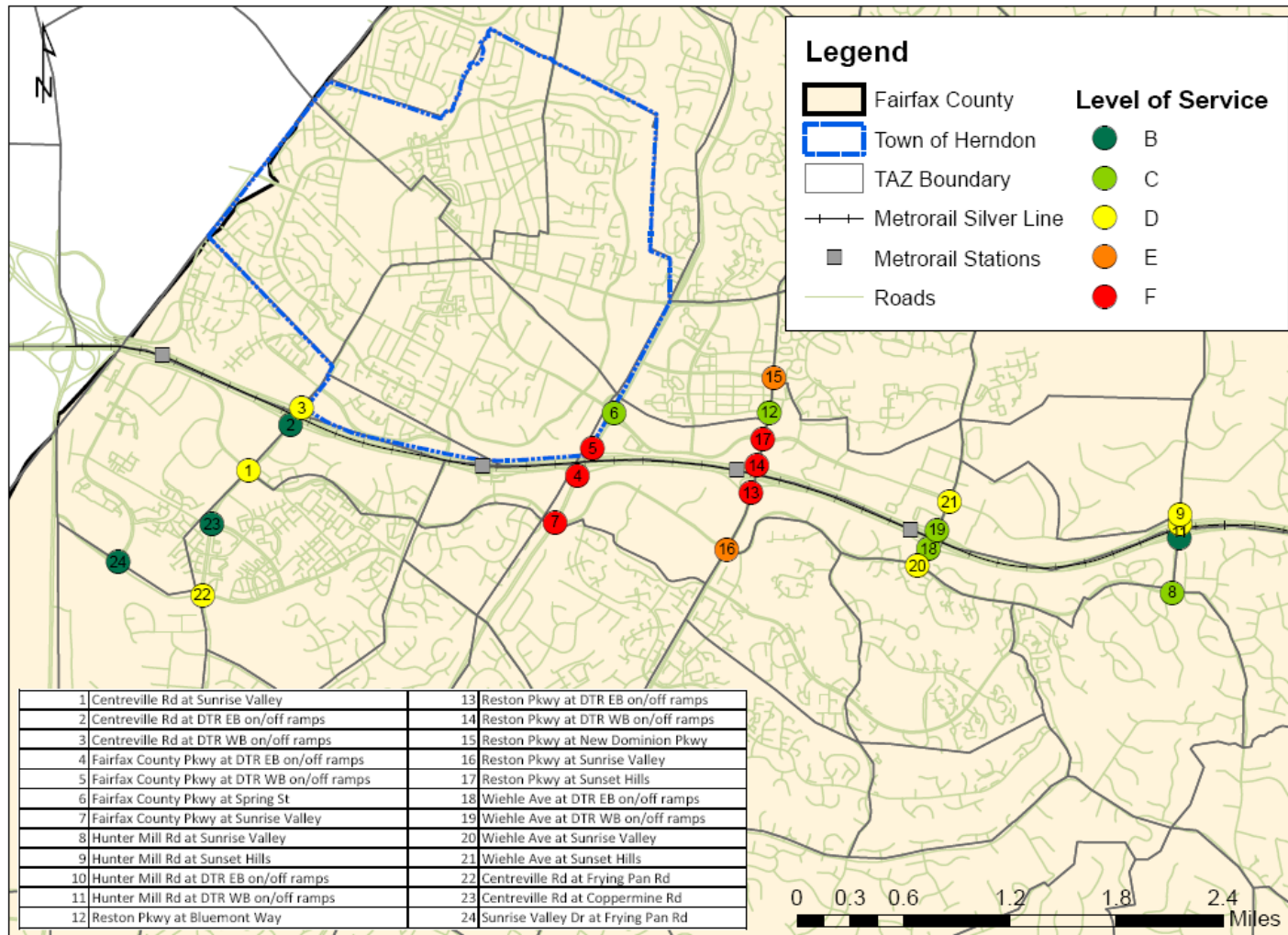
Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.





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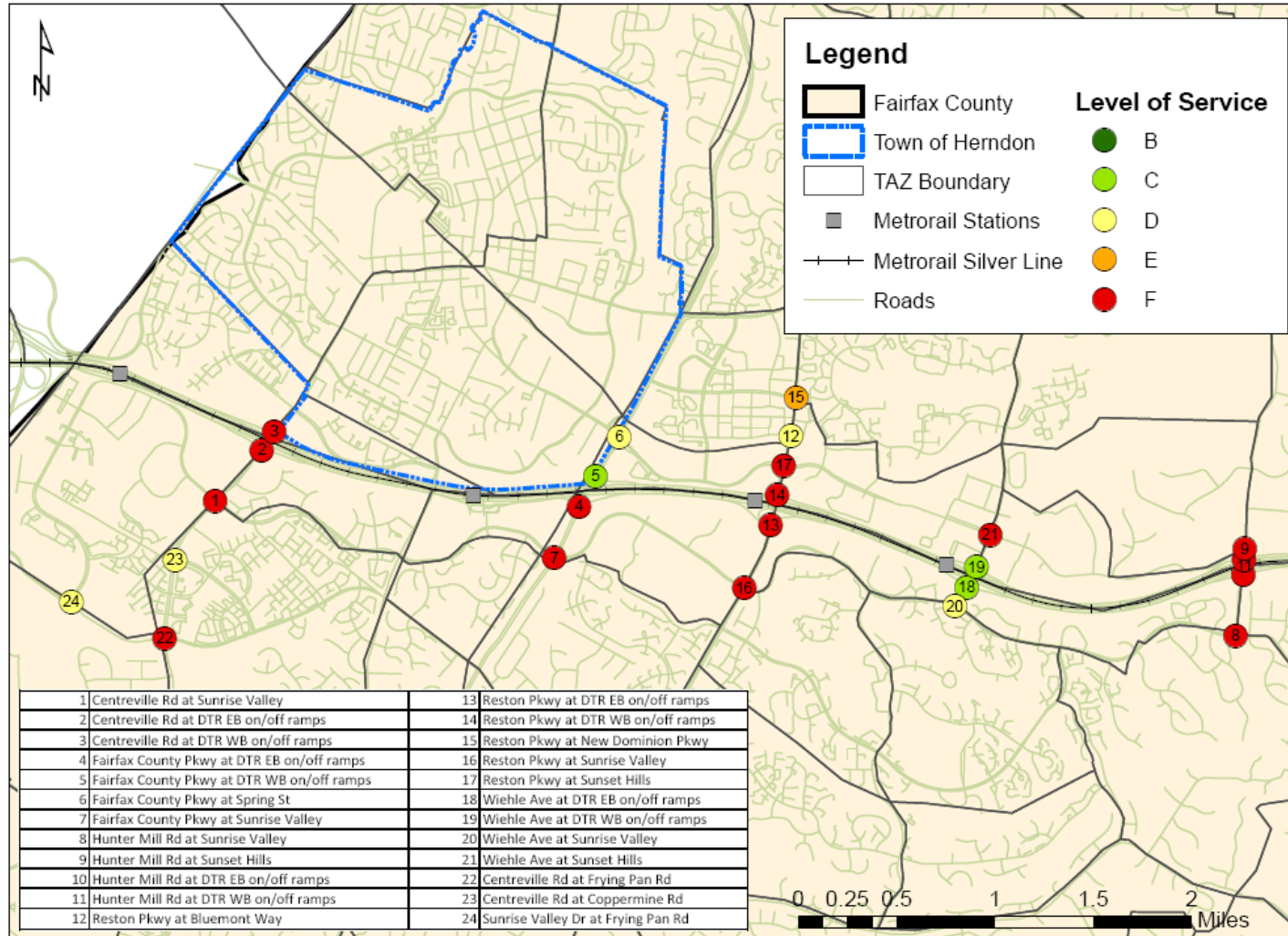
Existing Morning Peak Hour Level of Service





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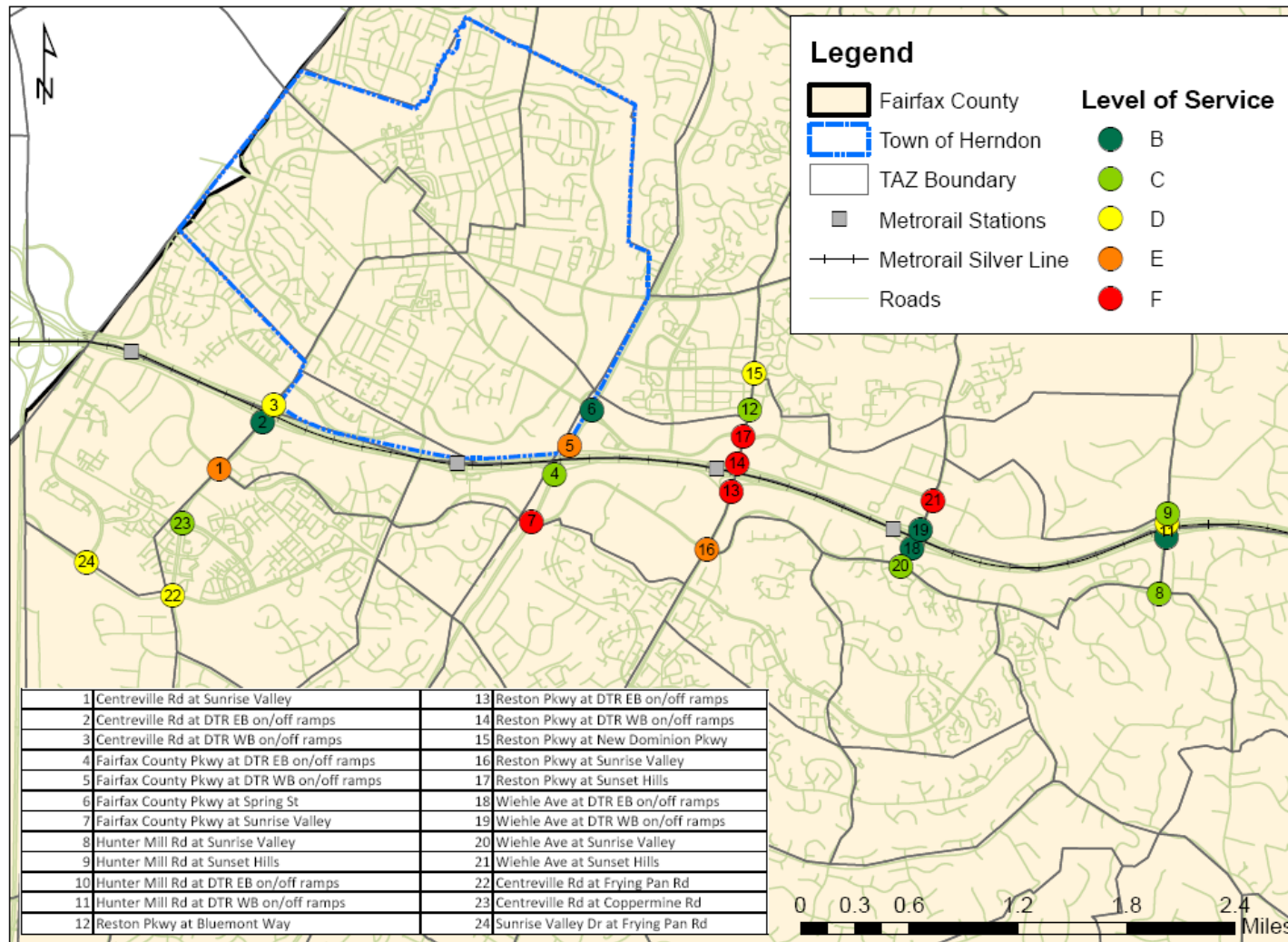
Future Morning Peak Hour Level of Service





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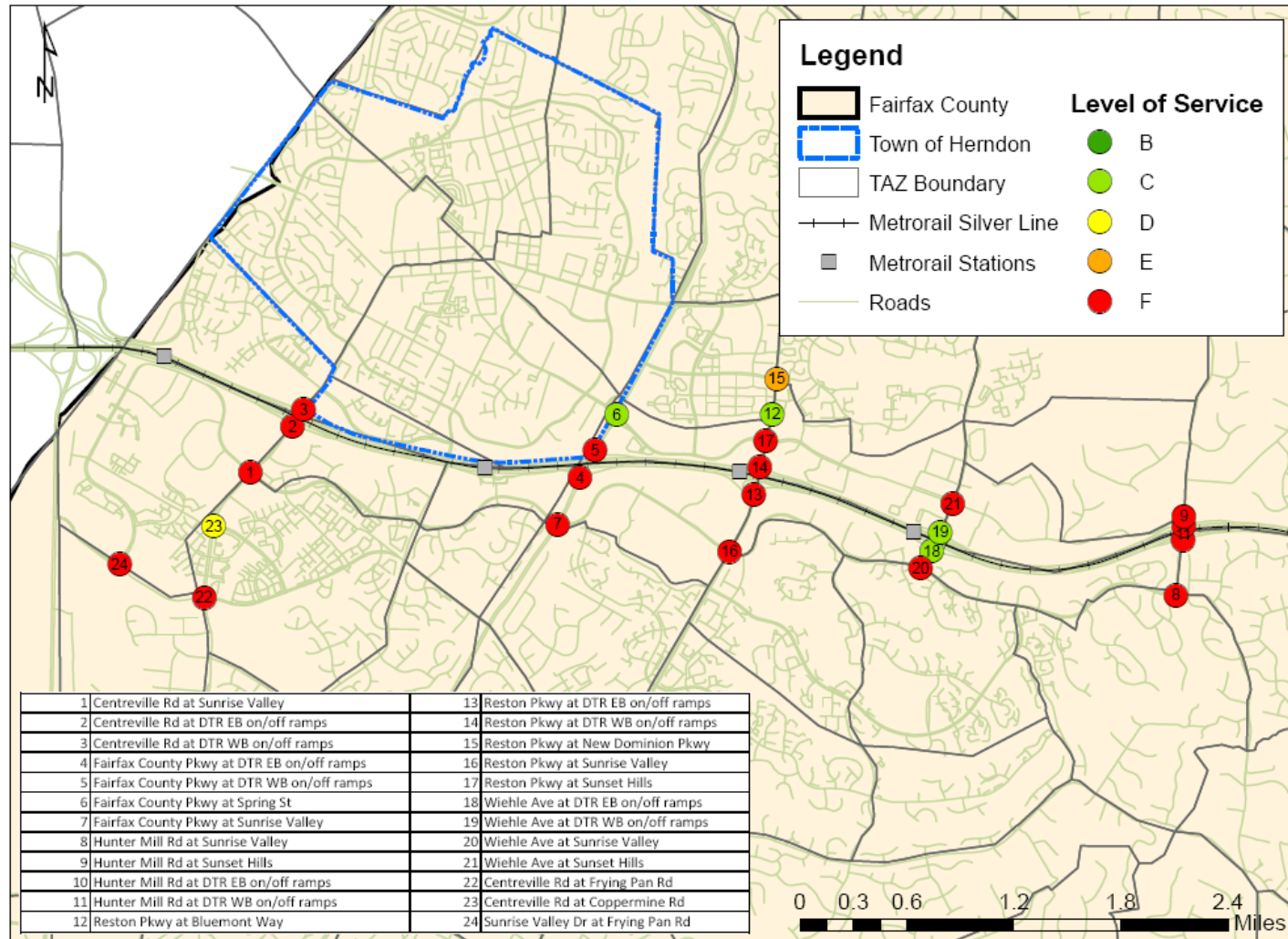
Existing Evening Peak Hour Level of Service





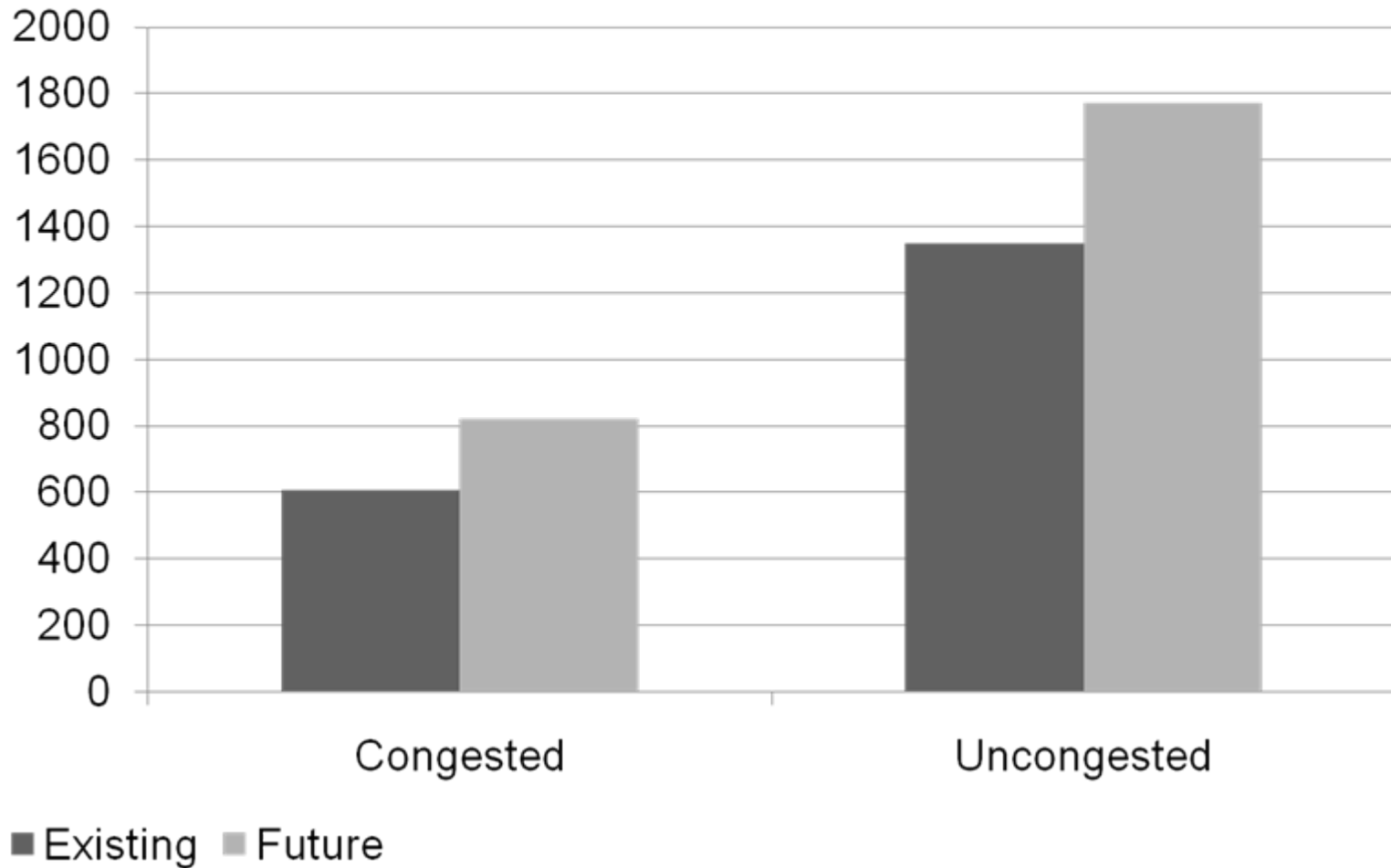
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Future Evening Peak Hour Level of Service





Study Area Total VMT Congested and Uncongested





General Mitigation Strategies

- Strategic Land Use (TOD)
 - Mixed –Use, Location, Type
- Local Connections
- Enhanced Pedestrian and Bicycle Paths
- Increase Use of Transit
- Enhanced TDM
- Traffic Operations
- Intersection Improvements



Questions/Discussion